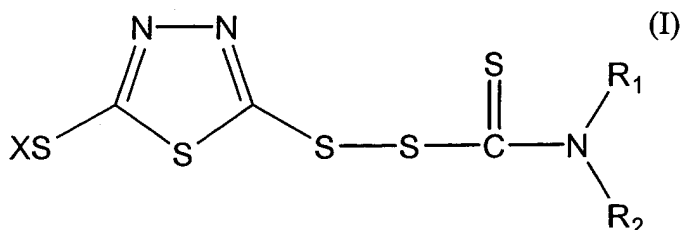
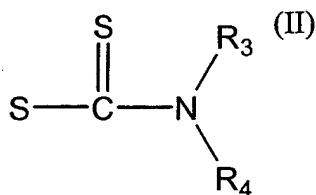


WE CLAIM:

1. An additive comprising a dithiocarbamyl-1,3,4-thiadiazole derivative having formula (I), or an isomer thereof:



where  $\text{R}_1$  and  $\text{R}_2$  are independently a radical being either an alkyl, a cycloalkyl, an alkenyl, an aryl, an arylalkyl, or an alkylaryl, or  $\text{R}_1$  and  $\text{R}_2$  together form a 3- to 7-membered cyclic ring structure; and X is (i) hydrogen, (ii) a dithiocarbamyl radical having formula (II):



where  $\text{R}_3$  and  $\text{R}_4$  are independently a radical being either an alkyl, a cycloalkyl, an alkenyl, an aryl, an arylalkyl, or an alkylaryl, or  $\text{R}_3$  and  $\text{R}_4$  together form 3- to 7-membered cyclic ring structure, or (iii) a mixture thereof.

2. The additive of Claim 1, wherein X is hydrogen, and  $\text{R}_1$  and  $\text{R}_2$  are each ethyl.

1                    3.        The additive of Claim 1, wherein X is hydrogen, and R<sub>1</sub> and R<sub>2</sub> are each  
2        isopropyl.

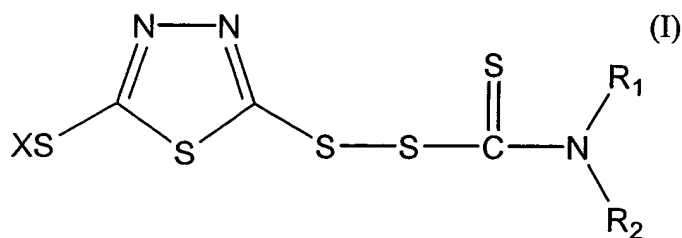
1                    4.        The additive of Claim 1, wherein X is hydrogen, and R<sub>1</sub> and R<sub>2</sub> are each  
2        selected from the group consisting of butyl, isobutyl and mixtures thereof.

1                    5.        The additive of Claim 1, wherein X is hydrogen, and R<sub>1</sub> and R<sub>2</sub> together  
2        form a 6-membered cyclic ring structure.

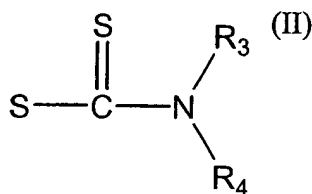
1                    6.        The derivative of Claim 5, wherein the 6-membered cyclic ring structure is  
2        a piperidyl radical.

1                    7.        The additive of Claim 1, further comprising a diluent.

1                    8.        A curable polymer composition comprising a major amount of at least one  
2        halogenated polymer and at least one additive comprising a dithiocarbamyl-1,3,4,-thiadiazole  
3        derivative having formula (I), or an isomer thereof:



5 where  $R_1$  and  $R_2$  are independently a radical being either an alkyl, a cycloalkyl, an alkenyl, an  
 6 aryl, an arylalkyl, or an alkylaryl, or  $R_1$  and  $R_2$  together form a 3- to 7-membered cyclic ring  
 7 structure; and X is (i) hydrogen, (ii) a dithiocarbamyl radical having formula (II):



9 where  $R_3$  and  $R_4$  are independently a radical being either an alkyl, a cycloalkyl, an alkenyl, an  
 10 aryl, an arylalkyl, or an alkylaryl, or  $R_3$  and  $R_4$  together form 3- to 7-membered cyclic ring  
 11 structure, or (iii) a mixture thereof.

1 9. The curable polymer composition of Claim 8, wherein X is hydrogen, and  
 2  $R_1$  and  $R_2$  are each ethyl.

1 10. The curable polymer composition of Claim 8, wherein X is hydrogen, and  
 2  $R_1$  and  $R_2$  are each isopropyl.

1                    11.    The curable polymer composition of Claim 8, wherein X is hydrogen, and  
2     $R_1$  and  $R_2$  are each selected from the group consisting of butyl, isobutyl and mixtures thereof.

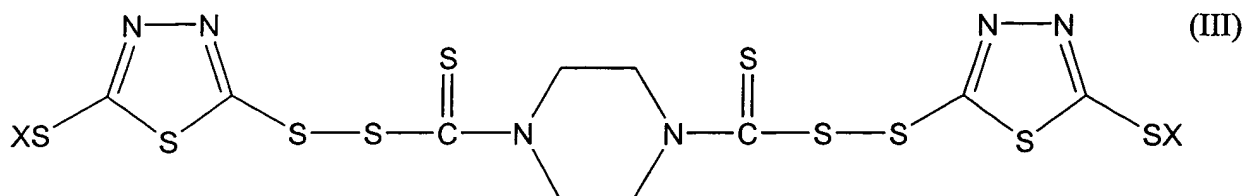
1                    12.    The curable polymer composition of Claim 8, wherein X is hydrogen, and  
2     $R_1$  and  $R_2$  together form a 6-membered cyclic ring structure.

1                    13.    The curable polymer composition of Claim 8, wherein the halogenated  
2    polymer is a chlorinated polymer.

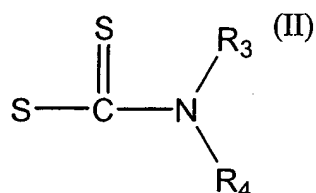
1                    14.    The curable polymer composition of Claim 13, wherein the chlorinated  
2    polymer is selected from the group consisting of homopolymers of epichlorohydrin, copolymers  
3    of epichlorohydrin and ethylene oxide or propylene oxide, polychloroprene, chlorinated  
4    polyolefins, chlorosulfonated polyolefin, polychloroalkylacrylates, chlorobutyl rubber and  
5    mixtures thereof.

1                    15.    The curable polymer composition of Claim 13, wherein the chlorinated  
2    polyolefins is chloropolyethylene.

1                    16.    An additive comprising a dithiocarbamyl-bis-1,3,4,-thiadiazole derivative  
2    having formula (III), or an isomer thereof:



4 where X is (i) hydrogen, (ii) a dithiocarbamyl radical having formula (II):

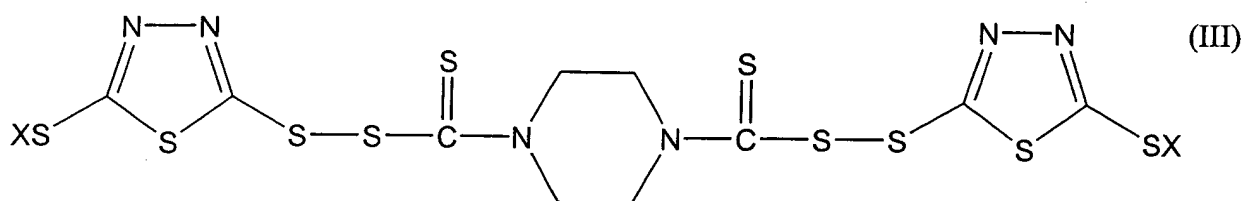


6 where  $R_3$  and  $R_4$  are independently a radical being either an alkyl, a cycloalkyl, an alkenyl, an  
 7 aryl, an arylalkyl, or an alkylaryl, or  $R_3$  and  $R_4$  together form 3- to 7-membered cyclic ring  
 8 structure, or (iii) a mixture thereof.

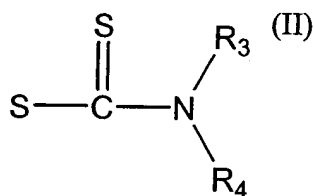
1 17. The additive of Claim 16, wherein X is hydrogen.

1 18. The additive of Claim 16, further comprising a diluent.

1 19. A curable polymer composition comprising a major amount of at least one  
 2 halogenated polymer and at least one additive comprising a dithiocarbamyl-bis-1,3,4-thiadiazole  
 3 derivative having formula (III), or an isomer thereof:



5 where X is (i) hydrogen, (ii) a dithiocarbamyl radical having formula (II):



7 where  $R_3$  and  $R_4$  are independently a radical being either an alkyl, a cycloalkyl, an alkenyl, an  
 8 aryl, an arylalkyl, or an alkylaryl, or  $R_3$  and  $R_4$  together form 3- to 7-membered cyclic ring  
 9 structure, or (iii) a mixture thereof.

1 20. The curable polymer composition of Claim 19, wherein X is hydrogen.

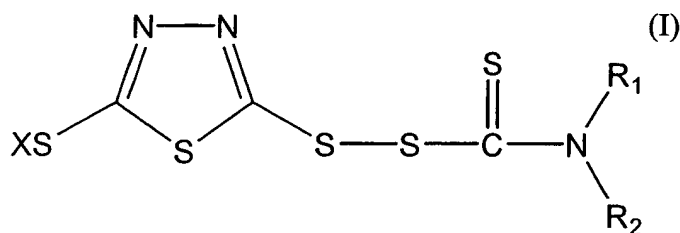
1 21. The curable polymer composition of Claim 19, wherein the halogenated  
 2 polymer is a chlorinated polymer.

1 22. The curable polymer composition of Claim 21, wherein the chlorinated  
 2 polymer is selected from the group consisting of homopolymers of epichlorohydrin, copolymers  
 3 of epichlorohydrin and ethylene oxide or propylene oxide, polychloroprene, chlorinated

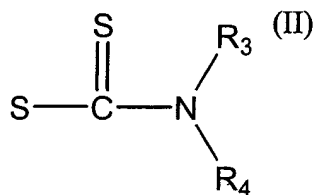
polyolefins, chlorosulfonated polyolefin, polychloroalkylacrylates, chlorobutyl rubber and mixtures thereof.

23. A method of preparing a cured polymer composition, which comprises:  
admixing at least one halogenated polymer with at least one additive  
including at least one thiadiazole derivative selected from the group consisting of:

(a) a dithiocarbamyl-1,3,4-thiadiazole derivative having formula (I), or an isomer thereof:

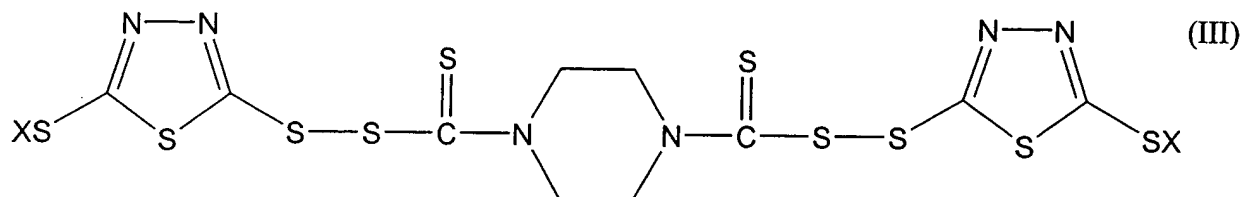


where  $\text{R}_1$  and  $\text{R}_2$  are independently a radical being either an alkyl, a cycloalkyl, an alkenyl, an aryl, an arylalkyl, or an alkylaryl, or  $\text{R}_1$  and  $\text{R}_2$  together form a 3- to 7-membered cyclic ring structure; and X is (i) hydrogen, (ii) a dithiocarbamyl radical having formula (II):

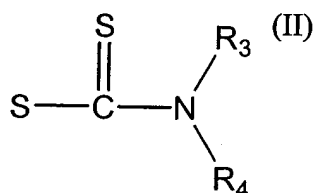


where  $\text{R}_3$  and  $\text{R}_4$  are independently a radical being either an alkyl, a cycloalkyl, an alkenyl, an aryl, an arylalkyl, or an alkylaryl, or  $\text{R}_3$  and  $\text{R}_4$  together form 3- to 7-membered cyclic ring structure, or (iii) a mixture thereof;

(b) a dithiocarbamyl-bis-1,3,4-thiadiazole derivative having formula (III), or an isomer thereof:



where X is (i) hydrogen, (ii) a dithiocarbamyl radical having formula (II):



where R<sub>3</sub> and R<sub>4</sub> are independently a radical being either an alkyl, a cycloalkyl, an alkenyl, an aryl, an arylalkyl, or an alkylaryl, or R<sub>3</sub> and R<sub>4</sub> together form 3- to 7-membered cyclic ring structure, or (iii) a mixture thereof; and

curing the admixture to form the cured composition.

24. The method of Claim 23, wherein at least one thiadiazole derivative is a derivative having formula (I), X is hydrogen, and R<sub>1</sub> and R<sub>2</sub> are each ethyl.

25. The method of Claim 23, wherein at least one thiadiazole derivative is a derivative having formula (I), X is hydrogen, and R<sub>1</sub> and R<sub>2</sub> are each isopropyl.



26. The method of Claim 23, wherein at least one thiadiazole derivative is the derivative having formula (I), X is hydrogen, and R<sub>1</sub> and R<sub>2</sub> are selected from the group consisting of butyl, isobutyl and mixtures thereof.

27. The method of Claim 23, wherein at least one thiadiazole derivative is the derivative having formula (I), X is hydrogen, and R<sub>1</sub> and R<sub>2</sub> together form a 6-membered cyclic ring structure.

28. The method of Claim 23, wherein at least one thiadiazole derivative is the derivative having formula (III) and X is hydrogen.

29. The method of Claim 23, wherein the halogenated polymer is a chlorinated polymer.

30. The method of Claim 29, wherein the chlorinated polymer is selected from the group consisting of homopolymers of epichlorohydrin, copolymers of epichlorohydrin and ethylene oxide or propylene oxide, polychloroprene, chlorinated polyolefins, chlorosulfonated polyolefin, polychloroalkylacrylates, chlorobutyl rubber and mixtures thereof.

31. The curable polymer composition of Claim 29, wherein the chlorinated polyolefins is chloropolyethylene.